



Technical Publications

**Direction DOC2708105
Revision 01**

Media Manager 7.0 DICOM CONFORMANCE STATEMENT

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CONFORMANCE STATEMENT OVERVIEW

Media Manager implements the necessary DICOM services to facilitate the submission and retrieval of visible light images, PDF documents, structured reports and videos. Table 1 provides an overview of the network services supported by Media Manager.

Table 1 – NETWORK SERVICES

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer		
VL Photographic Image Storage	Yes	Yes
Video Photographic Image Storage	Yes	Yes
Basic Text SR	Yes	Yes
Key Object Selection Document	Yes	No
Encapsulated PDF Storage	Yes	Yes
Query/Retrieve		
Study Root Query/Retrieve Information Model – FIND	Yes	No
Study Root Query/Retrieve Information Model - MOVE	Yes	No

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1. INTRODUCTION

1.1 REVISION HISTORY

Revision	Date	Description
1	18-04-2022	Initial Version

1.2 OVERVIEW

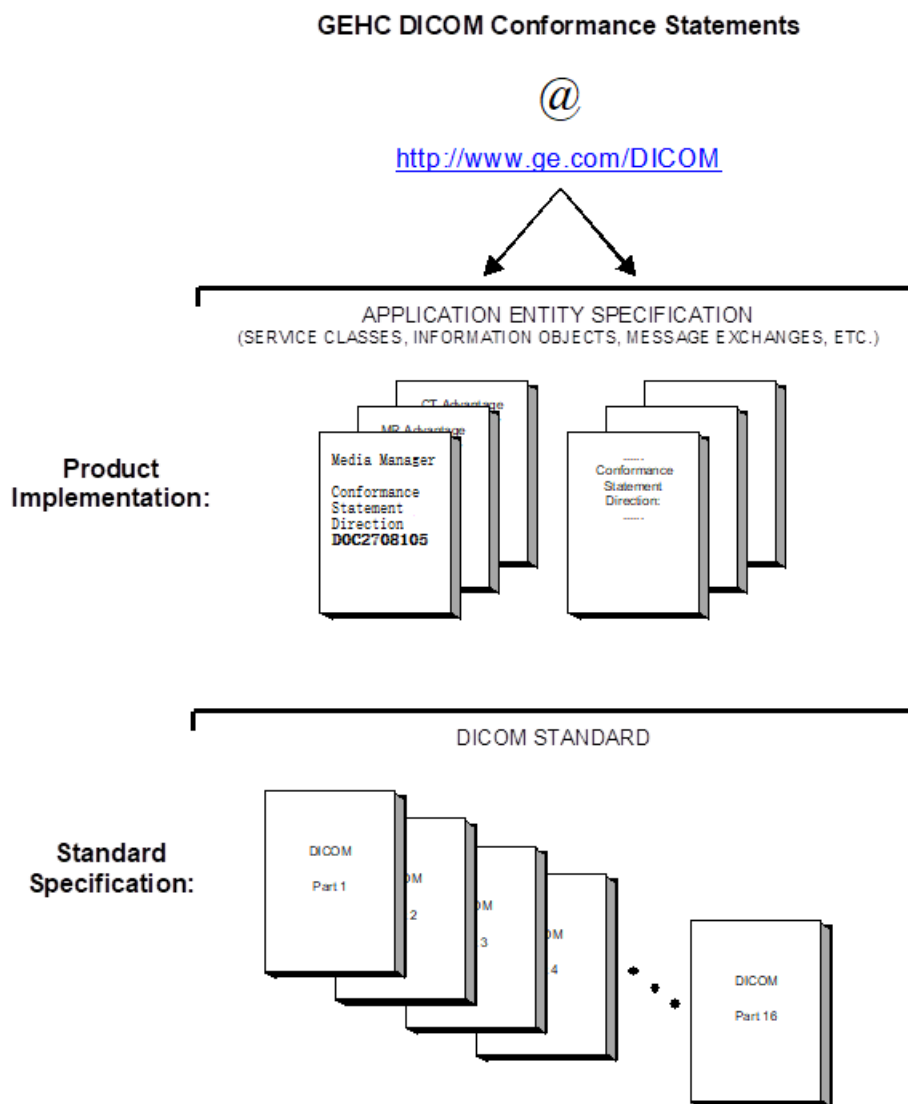
This DICOM Conformance Statement is divided into Sections as described below:

Section 1 (Introduction), which describes the overall structure, intent, and references for this Conformance Statement.

Section 2 (Network Conformance Statement) which specifies the GEHC equipment compliance to the DICOM requirements for the implementation of Networking features.

1.3 OVERALL DICOM CONFORMANCE STATEMENT DOCUMENT STRUCTURE

The Documentation Structure of the GEHC DICOM Conformance Statements is shown in the Illustration below.



This document specifies the DICOM implementation. It is entitled:

Media Manager 7.0
Conformance Statement for DICOM
Direction DOC2708105

This DICOM Conformance Statement documents the DICOM Conformance Statement and Technical Specification required to interoperate with the GEHC network interface.

The GEHC Conformance Statement, contained in this document, also specifies the Lower Layer communications which it supports (e.g., TCP/IP). However, the Technical Specifications are defined in the DICOM Part 8 standard.

For more information regarding DICOM, copies of the Standard may be obtained on the Internet at <http://medical.nema.org>. Comments on the Standard may be addressed to:

DICOM Secretariat
NEMA
1300 N. 17th Street, Suite 1752
Rosslyn, VA 22209
USA
Phone: +1.703.841.3200

1.4 INTENDED AUDIENCE

The reader of this document is concerned with software design and/or system integration issues. It is assumed that the reader of this document is familiar with the DICOM Standard and with the terminology and concepts which are used in that Standard.

1.5 SCOPE AND FIELD OF APPLICATION

It is the intent of this document to provide an unambiguous specification for GEHC implementations. This specification, called a Conformance Statement, includes a DICOM Conformance Statement and is necessary to ensure proper processing and interpretation of GEHC medical data exchanged using DICOM. The GEHC Conformance Statements are available to the public.

The reader of this DICOM Conformance Statement should be aware that different GEHC devices are capable of using different Information Object Definitions. For example, a GEHC CT Scanner may send images using the CT Information Object, MR Information Object, Secondary Capture Object, etc.

Included in this DICOM Conformance Statement are the Module Definitions which define all data elements used by this GEHC implementation. If the user encounters unspecified private data elements while parsing a GEHC Data Set, the user is well advised to ignore those data elements (per the DICOM standard). Unspecified private data element information is subject to change without notice. If, however, the device is acting as a "full fidelity storage device", it should retain and re-transmit all of the private data elements which are sent by GEHC devices.

1.6 IMPORTANT REMARKS

The use of these DICOM Conformance Statements, in conjunction with the DICOM Standards, is intended to facilitate communication with GE imaging equipment. However, **by itself, it is not sufficient to ensure that inter-operation will be successful**. The **user (or user's agent)** needs to proceed with caution and address at least four issues:

- **Integration** - The integration of any device into an overall system of interconnected devices goes beyond the scope of standards (DICOM v3.0), and of this introduction and associated DICOM Conformance Statements when interoperability with non-GE equipment is desired. The responsibility to analyze the applications requirements and to design a solution that integrates GE imaging equipment with non-GE systems is the **user's** responsibility and should not be underestimated. The **user** is strongly advised to ensure that such an integration analysis is correctly performed.
- **Validation** - Testing the complete range of possible interactions between any GE device and non-GE devices, before the connection is declared operational, should not be overlooked. Therefore, the **user** should ensure that any non-GE provider accepts full responsibility for all validation required for their connection with GE devices. This includes the accuracy of the image data once it has crossed the interface between the GE imaging equipment and the non-GE device and the stability of the image data for the intended applications.

Such a validation is required before any clinical use (diagnosis and/or treatment) is performed. It applies when images acquired on GE imaging equipment are processed/displayed on a non-GE device, as well as when images acquired on non-GE equipment is processed/displayed on a GE console or workstation.

- **Future Evolution** - GE understands that the DICOM Standard will evolve to meet the user's growing requirements. GE is actively involved in the development of the DICOM Standard. DICOM will incorporate new features and technologies and GE may follow the evolution of the Standard. The GEHC protocol is based on DICOM as specified in each DICOM Conformance Statement. Evolution of the Standard may require changes to devices which have implemented DICOM. **In addition, GE reserves the right to discontinue or make changes to the support of communications features (on its products) described by these DICOM Conformance Statements.** The **user** should ensure that any non-GE provider, which connects with GE devices, also plans for the future evolution of the DICOM Standard. Failure to do so will likely result in the loss of function and/or connectivity as the DICOM Standard changes and GE Products are enhanced to support these changes.
- **Interaction** - It is the sole responsibility of the **non-GE provider** to ensure that communication with the interfaced equipment does not cause degradation of GE imaging equipment performance and/or function.

1.7 REFERENCES

NEMA PS3 Digital Imaging and Communications in Medicine (DICOM) Standard, available free at <http://medical.nema.org/>

1.8 DEFINITIONS

Informal definitions are provided for the following terms used in this Conformance Statement. The DICOM Standard is the authoritative source for formal definitions of these terms.

Abstract Syntax – the information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples : Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.

Application Entity (AE) – an end point of a DICOM information exchange, including the DICOM network or media interface software; i.e., the software that sends or receives DICOM information objects or messages. A single device may have multiple Application Entities.

Application Entity Title – the externally known name of an *Application Entity*, used to identify a DICOM application to other DICOM applications on the network.

Application Context – the specification of the type of communication used between *Application Entities*. Example: DICOM network protocol.

Association – a network communication channel set up between *Application Entities*.

Attribute – a unit of information in an object definition; a data element identified by a *tag*. The information may be a complex data structure (Sequence), itself composed of lower level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).

Information Object Definition (IOD) – the specified set of *Attributes* that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. The *Attributes* may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C). Examples: MR Image IOD, CT Image IOD, Print Job IOD.

Joint Photographic Experts Group (JPEG) – a set of standardized image compression techniques, available for use by DICOM applications.

Media Application Profile – the specification of DICOM information objects and encoding exchanged on removable media (e.g., CDs)

Module – a set of *Attributes* within an *Information Object Definition* that are logically related to each other. Example: Patient Module includes Patient Name, Patient ID, Patient Birth Date, and Patient Sex.

Negotiation – first phase of *Association* establishment that allows *Application Entities* to agree on the types of data to be exchanged and how that data will be encoded.

Presentation Context – the set of DICOM network services used over an *Association*, as negotiated between *Application Entities*; includes *Abstract Syntaxes* and *Transfer Syntaxes*.

Protocol Data Unit (PDU) – a packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.

Security Profile – a set of mechanisms, such as encryption, user authentication, or digital signatures, used by an *Application Entity* to ensure confidentiality, integrity, and/or availability of exchanged DICOM data

Service Class Provider (SCP) – role of an *Application Entity* that provides a DICOM network service; typically, a server that performs operations requested by another *Application Entity* (*Service Class User*). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).

Service Class User (SCU) – role of an *Application Entity* that uses a DICOM network service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU)

Service/Object Pair (SOP) Class – the specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.

Service/Object Pair (SOP) Instance – an information object; a specific occurrence of information exchanged in a *SOP Class*. Examples: a specific x-ray image.

Tag – a 32-bit identifier for a data element, represented as a pair of four digit hexadecimal numbers, the “group” and the “element”. If the “group” number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element]

Transfer Syntax – the encoding used for exchange of DICOM information objects and messages. Examples: *JPEG* compressed (images), little endian explicit value representation.

Unique Identifier (UID) – a globally unique “dotted decimal” string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.

Value Representation (VR) – the format type of an individual DICOM data element, such as text, an integer, a person’s name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

1.9 SYMBOLS AND ABBREVIATIONS

MM	Media Manager
AE	Application Entity
AET	Application Entity Title
CDA	Clinical Document Architecture

CSE	Customer Service Engineer
DHCP	Dynamic Host Configuration Protocol
DICOM	Digital Imaging and Communications in Medicine
DIT	Directory Information Tree (LDAP)
DN	Distinguished Name (LDAP)
DNS	Domain Name System
HIS	Hospital Information System
HL7	Health Level 7 Standard
IHE	Integrating the Healthcare Enterprise
IOD	Information Object Definition
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISO	International Organization for Standards
JPEG	Joint Photographic Experts Group
LDAP	Lightweight Directory Access Protocol
LDIF	LDAP Data Interchange Format
LUT	Look-up Table
MAR	Medication Administration Record
MPEG	Moving Picture Experts Group
MTU	Maximum Transmission Unit (IP)
NTP	Network Time Protocol
O	Optional (Key Attribute)
OSI	Open Systems Interconnection
OT	Other
PACS	Picture Archiving and Communication System
PDU	Protocol Data Unit
R	Required (Key Attribute)
RDN	Relative Distinguished Name (LDAP)
RIS	Radiology Information System

SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
U	Unique (Key Attribute)
UL	Upper Layer
VL	Visible Light
VR	Value Representation
MPI	Master Patient Index

2. NETWORK CONFORMANCE STATEMENT

2.1 INTRODUCTION

This section of the DICOM Conformance Statement specifies the Media Manager compliance to DICOM requirements for **Networking** features.

Media Manager is a web-based and mobile application running on Android and iOS devices. The mobile application captures visible light images and video for ingestion and DICOM-wraps the images and video. The web application allows ingestion as DICOM-wrapped images, PDF documents, and video too. It allows for the following DICOM functionality:

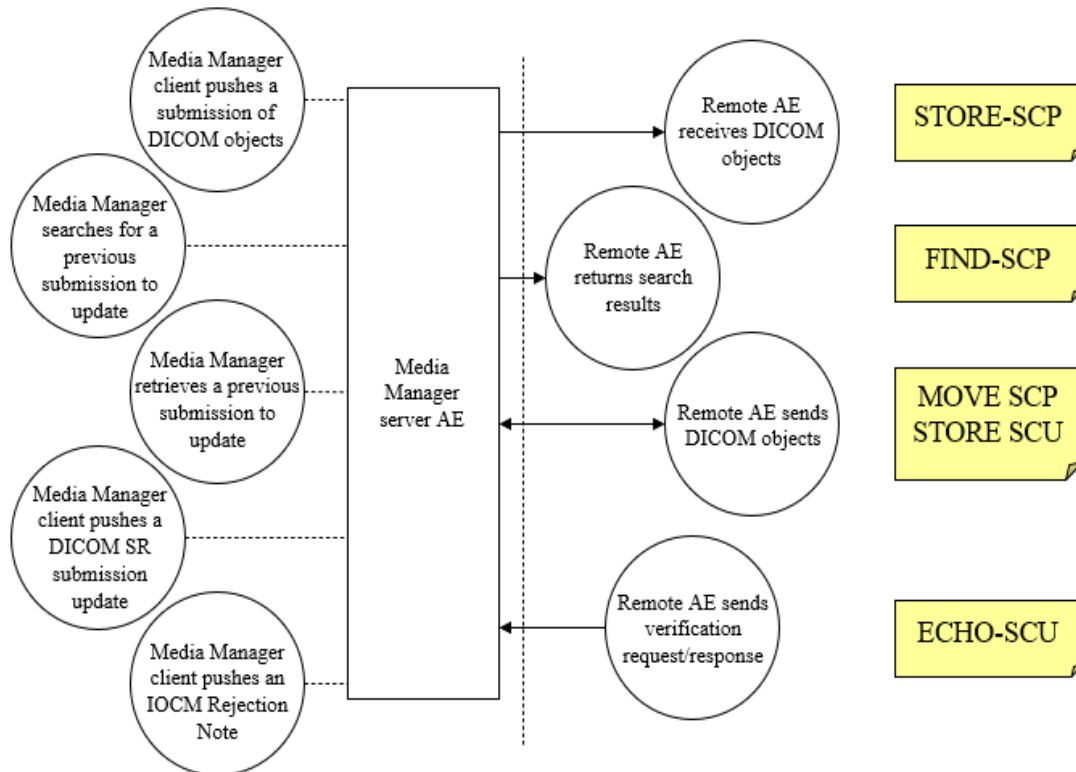
- Receiving Verification Echo messages from DICOM Verification SCP
- Convert JPEG images to DICOM Visible Light Photographic Image and transfer them to a DICOM SCP over a JPEGProcess1 transfer syntax.
- Convert MP4 images to Video Photographic Image and transfer them to a DICOM SCP over a MPEG - 4 AVC / H.264 High Profile / Level 4.1 transfer syntax.
- Generate Basic Text Structured Reports with care group attributes metadata and transfer them to a DICOM SCP over a ExplicitVRLittleEndian.Transfer syntax
- Convert PDF document to Encapsulated PDF DICOM object and transfer them to a DICOM SCP over a ExplicitVRLittleEndian.Transfer syntax
- Generate Key Object Selection with reference to DICOM objects to be deleted in DICOM SCP

2.2 IMPLEMENTATION MODEL

2.2.1 Application Data Flow Diagram

The network application model for the Media Manager is shown in the following Illustration :

ILLUSTRATION 2-1
MEDIA MANAGER NETWORK APPLICATION MODEL AND DATA FLOW DIAGRAM



The Media Manager Application Entity (AE) is an application that perform following Real World Activity:

Image/Video/PDF Export, Image/Video/PDF Import, Remote Query and Echo

Echo: Media Manager receives a verification request with the DICOM SCP

Image/Video/PDF Export: Initiates a connection with the DICOM SCP and transmits images/video/PDF and results to the DICOM SCP.

Image/Video/PDF Import: Initiates a connection with the DICOM SCU and receives DICOM documents. This is required viewing, updating and deleting the document in Media Manager .

Remote Query: For this operation, a remote DICOM AE asks to obtain the list of data at Patient root level.

2.2.2 Functional Definition of AE's

Application Entity Media Manager supports the following functions:

Receives a DICOM Verification to assist in network diagnostics.

Initiates a DICOM association to send images/video/PDF.

Receives a DICOM association to get ingested documents and their metadata.

Initiates a DICOM association to ask for remote patient studies.

2.2.3 Sequencing of Real-World Activities

1. Network configuration of the system should be accomplished first.
2. System configuration allows for Echo, and Store configuration of Remote SCP's, which will have a server alias name on Media Manager.
3. DICOM Verification should be performed during configuration enabling the user to perform network diagnostics before procedures.
4. Media Manager queries to remote AE for retrieving patient information.
5. Image/Video/PDF Send can be performed during or after the visit to the clinical facility's department.
6. Image/Video/PDF Retrieve can be performed once submitted from Media Manager web or Mobile device.

2.3 AE SPECIFICATIONS

Configuration must be completed and saved before the system is able to perform DICOM Store, FIND, MOVE or Echo operation.

2.3.1 Media Manager AE Specification

The Media Manager Application Entity provides Standard Conformance to the following DICOM SOP Classes as an **SCU** and/or as an **SCP**:

Table 2-1

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	Yes
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	No

2.3.1.1 Association Establishment Policies

2.3.1.1.1 General

The DICOM Application Context Name (ACN), which is always proposed, is:

Table 2-2

Application Context Name	1.2.840.10008.3.1.1.1
---------------------------------	------------------------------

The maximum length PDU receive size for the Media Manager is:

Table 2-3

Maximum Length PDU	16384 – Not Configurable
---------------------------	---------------------------------

2.3.1.1.2 Number of Associations

As an SCP, Media Manager will accept single inbound DICOM associations. As an SCU, Media Manager will make a single outbound DICOM association.

2.3.1.1.3 Asynchronous Nature

Asynchronous mode is not supported. All operations will be performed synchronously.

2.3.1.1.4 Implementation Identifying Information

The Implementation UID for this DICOM Implementation is:

Table 2-4

Media Manager Implementation UID	1.2.840.113619.6.502.1
Media Manager Implementation Version Name	Media Manager Product build number

2.3.1.2 Association Initiation Policy

When the Media Manager Application Entity initiates an Association for any Real-World Activity, it will propose the Presentation Contexts for all Real-World Activities; i.e., there is only a single, comprehensive Presentation Context Negotiation proposed for the AE.

The Media Manager proposes only a single Transfer Syntax in each Presentation Context; i.e., for each Abstract Syntax in the following Presentation Context Tables, the AE proposes one Presentation Context for each specified Transfer Syntax.

2.3.1.2.1 Real-World Activity Image/Video/PDF Export

2.3.1.2.1.1 Associated Real-World Activity

Upon a request by the operator from MM web or mobile application,, images/video/PDF will be sent to a DICOM Storage SCP.

2.3.1.2.1.2 Associated Initiation Policy

Media Manager Web and Mobile Application performs submission of documents to MM Server AE which initiates a new associations with a remote DICOM AE for each submission.

The operator can select to push to a remote DICOM AE:

A set of several images/videos/pdfs that belong to the same patient which gets converted into a DICOM study.

For each Image/PDF/Video, there will be one SR report created which will capture all the metadata for the document.

Each document in a submission will create separate series and all SR reports will be in a same separate series.

2.3.1.2.1.3 Proposed Presentation Context Table

Table 2-5

The Proposed Presentation Context Table is as per table mentioned below:

Presentation Context Table – Proposed by Media Manager for Activity Image/Video/PDF Save					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102	SCU	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Study Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

2.3.1.2.1.3.1 SOP Specific DICOM Conformance Statement for All Storage SOP Classes

Following are the status codes that are more specifically processed when receiving messages from a **Storage** SCP equipment

Table 2-6

DICOM COMMAND COMMUNICATION FAILURE BEHAVIOR

Exception	Behavior
Timeout	The association is aborted using A-ABORT and the command is marked as failed. The reason will be logged and the transfer will be retried later (see send retry note)
Association aborted	The command is marked as failed. The reason will be logged and the transfer will be retried later (see send retry note)

2.3.1.2.1.3.2 SOP Specific DICOM Conformance Statement for the Basic Text Structured Reporting Storage SOP Classes

Basic text Structured will be generated per Image/Video/PDF in a Media Manager submission. All structured report will be kept in one series.

Key Object Selection DICOM objects will be created for deleting an Image/Video/PDF from archive.

The Media Manager supports creation and transmission of Structured Reporting, Key Object Selection Document referencing Instances of the following Storage SOP Classes:

Table 2-7

SOP Class Name	SOP Class UID
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1

2.3.1.2.2 Real world activity Find Patient History

SOP SPECIFIC DICOM CONFORMANCE STATEMENT FOR THE STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL – FIND SOP CLASSES

Following are the status codes that are more specifically processed when receiving messages from a **Query** SCP equipment :

Table 2-8

Service Status	Status Code	Further Meaning	Application Behavior When Receiving Status Code
Failure	A700	Refused: Out of resources	Terminate the association and operation.
	A900	Error: Identifier does not match SOP Class	Terminate the association and operation.

	C000-CFFF	Error: Unable to process	Terminate the association and operation.
	0122	SOP Class Not Supported	Terminate the association and operation.
Cancel	FE00	Matching terminated due to cancel	Terminate the association and operation.
Success	0000	Matching is complete - No final identifier is supplied	
Pending	FF00	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	Receiving process of the matching continues.
	FF01	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this Identifier	Receiving process of the matching continues without any warnings or errors.

2.3.1.2.3 Real world activity SOP Specific DICOM Conformance Statement for C-MOVE:

The C-MOVE-RQ will use the AE Title of the Media Manager Application Entity as the Move Destination AE Title.

Following are the status codes that are more specifically processed when receiving messages from a Retrieve SCP equipment :

Table 2-9

Service Status	Status Code	Further Meaning	Application Behavior When Receiving Status Code
Failure	A701	Refused: Out of resources - Unable to calculate number of matches	Terminate the association and operation.
	A702	Refused: Out of resources - Unable to perform sub-operations	Terminate the association and operation.
	A801	Refused: Move Destination Unknown	Terminate the association and operation.
	A900	Error: Identifier does not match SOP Class	Terminate the association and operation.
	C000-CFFF	Error: Unable to process	Terminate the association and operation.
	0122	SOP Class Not Supported	Terminate the association and operation.

Cancel	FE00	Sub-operations terminated due to a Cancel indication	Terminate the association and operation.
Warning	B000	Sub-operations Complete - One or more Failures.	Processing completes. Spooler Job is completed and removed from the spooler.
Success	0000	Sub-operations Complete - No Failure.	
Pending	FF00	Sub-operations are continuing -	Sub-operations continue.

2.3.1.2.3.1 Transfer Syntax Selection Policies

Within each Presentation Context, the Media Manager will accept the first proposed transfer syntax that it also supports for that Abstract Syntax.

2.3.1.3 Association Acceptance Policy

The Media Manager DICOM server AE refuses the association if transfer syntax is not supported as per section 2.3.1.2.1.3.

2.3.1.3.1 Real-World Activity 'Echo' Operation

2.3.1.3.1.1 Associated Real-World Activity

Upon manual request of the operator, a DICOM Verification Request is sent to a configured destination.

2.3.1.3.1.2 Accepted Presentation Context Table

Table 2-10

Presentation Context Table - Accepted by AE Media Manager for Activity 'Echo' Operation					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.4 COMMUNICATION PROFILES

2.4.1 Supported Communication Stacks

The DICOM Upper Layer Protocol is supported using TCP/IP, as specified in DICOM PS3.8.

The TCP/IP stack is inherited from the Windows Operating System.

2.5 EXTENSIONS / SPECIALIZATIONS/ PRIVATIZATIONS

2.5.1 Standard Extended / Specialized / Private SOP Classes

2.5.1.1 Standard Extended SOP Classes

The product provides Standard Extended Conformance to all supported SOP Classes, through the inclusion of additional Type 3 Standard Elements and Private Data Elements.

2.6 CONFIGURATION

2.6.1 AE Title/Presentation Address Mapping

The service engineer must configure the hostname, AE Title and listening port of the Remote DICOM AE after installation of Media Manager.

2.6.2 Configurable Parameters

The following fields are configurable for this AE (local):

- Local AE Title (Default: AE_Title)
- Local Listening Port Number (Default: 104)

The following fields are configurable for every remote DICOM AE:

- Remote AE Title (Default: AE_Title)
- Remote IP Address or Host name (Default: Host_Name)
- Listening TCP/IP Port Number (Default: 104)

The following fields are configurable:

- Association Establishment Timer
- Store Timer (Default: 60 mins)
- Find Timer (Default: 30 mins)
- Move Timers (Default: 30 mins)
- Inactivity Timers (Default: 20 mins)

Note: All configurations must be performed by a GE Field Engineer.

2.7 SUPPORT OF EXTENDED CHARACTER SETS

As a Storage SCP, the product will accept SOP Instances with any value of Specific Character Set (0008,0005). As a Query SCU, it will similarly accept response items with any value of Specific Character Set. However, it will display in the user interface only characters specified as within ISO_IR 6 (ASCII) or the configured extended character set.

The product user interface will allow the user to enter characters from the Hand held mobile device that are within ASCII or the configured extended character set. If any such extended characters are included in SOP Instances or in query identifier matching fields, the product will appropriately specify the extended character set in Specific Character Set (0008,0005).

2.8 CODES AND CONTROLLED TERMINOLOGY

None.

2.9 SECURITY PROFILES

MM supports the following Secure Transport Connection Profiles:

- Basic TLS Secure Transport Connection Profile (Default port: 2762)
- AES TLS Secure Transport Connection Profile (Default: DicomAes)
- Best current practice TLS Secure Connection Profile
- Best current practice plus restrictions TLS Secure Connection Profile

It is assumed that the product is used within a secured environment. It is assumed that a secured environment includes at a minimum:

1. Firewall or router protections to ensure that only approved external hosts have network access to the product.
2. Firewall or router protections to ensure that the product only has network access to approved external hosts and services.
3. Any communications with external hosts and services outside the locally secured environment use appropriate secure network channels (such as a Virtual Private Network (VPN))
4. DICOM association established over secure channel using valid certificate.
5. Media Manager sends Audit Trail Messages for each DICOM operation.

2.9.1 DICOM Security Profile Availability

2.9.1.1 Secure Use and User Identity Profiles

TABLE 2.11 SECURE USE AND USER IDENTITY PROFILES

Profile	Sender	Receiver	Reference
Audit Trail Message Format	Y	N	2.9.2
Audit Trail Message Transmission Profile - SYSLOG-TLS	Y	N	2.9.1.3

2.9.1.2 Secure Transport Connection Profiles

TABLE 2.12 SECURE TRANSPORT CONNECTION PROFILES

Profile	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
BCP195 TLS Secure Transport Connection	TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	
	TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	
Non-Downgrading BCP195 TLS Secure Transport Connection	TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	
	TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	

2.9.1.3 Audit Trail Message Transmission Profile – Syslog parameters

TABLE 2.13 AUDIT TRAIL MESSAGE TRANSMISSION PROFILE – SYSLOG PARAMETERS

Remote Audit Trail Message Transmission-SYSLOG parameters			
Parameter	Configurable	Default Value	Comment
Host Name/IP	YES		
Port Number	YES		
Secured port Number	YES		
Protocol	YES		UDP, TCP and TLS
Maximum Size sent	N/A		

2.9.2 Audit Trail Messages

The following tables specify the DICOM Specific Audit Messages that Media Manager can detect and report. It defines the list of triggers that will cause audit message to be generated. It also specifies if the content of the Audit message can be configured or not.

Audit Message	Usage	Supported Triggers	Configurable Triggers	Configurable Message
Data Export	Used	Exporting images to CD/DVD/USB	N	N
DICOM Instance Transferred	Used	Push Images	N	N
Query	Used	Image Query/Retrieve, MWL Query	N	N
Security Alert	Used	Secure node authentication failure	N	N

Data Export			
Event	EventID	Y	EV(110106,DCM,"Export")
	EventActionCode	Y	R
	EventDateTime	Y	System Current Date
	EventOutcomeIndicator	Y	0 = Successful 8 = Unsuccessful
Active Participant (1)	UserID	Y	Document Source (configurable in AuditSettings.config, processId attribute)
	UserIsRequestor	Y	false
	NetworkAccessPointTypeCode	Y	1
	NetworkAccessPointID	Y	Host Name or IP address of Media Manager Server
	RoleIDCode	Y	EV(110153,DCM,"Source Role ID")
Active Participant (2)	UserID	Y	MM User
	UserIsRequestor	Y	true
	NetworkAccessPointTypeCode	Y	None
	NetworkAccessPointID	Y	None
	RoleIDCode	Y	EV(1, RFC-3881, Person)
Active Participant (3)	UserID	Y	Path to the exported file
	UserIsRequestor	Y	false
	NetworkAccessPointTypeCode	Y	None
	NetworkAccessPointID	Y	None
	RoleIDCode	Y	EV(110154,DCM,"Destination")
Audit source identification	Code	Y	9
	AuditSourceID	Y	Empty value
Participant Object : Patients	ParticipantObjectID	Y	patientid^^&assigningAuthorityOid &ISO
	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectIDTypeCode	Y	EV(2,RFC-3881,"Patient Number")
	ParticipantObjectName	Y	No value
Participant Object : Studies	ParticipantObjectID	Y	Study Id
	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3

	ParticipantObjectIDTypeCode	Y	EV(110180,DCM,"Study Instance UID")
	ParticipantObjectName	Y	No value
	MPPS	Y	It contain UID
	Accession	Y	It contain Accession Number
	SOPClass	Y	It contains SOPClass UID, Number Of Instances and Instance UID
DICOM Instances Transferred			
Event	EventID	Y	EV(110104,DCM,"DICOM Instances Transferred")
	EventActionCode	Y	R
	EventDateTime	Y	System Current Date
	EventOutcomeIndicator	Y	0 = Successful 8 = Unsuccessful
Active Participant (1)	UserID	Y	DICOM Archive AE Title
	UserIsRequestor	Y	false
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	Host Name or IP address of DICOM Archive
	RoleIDCode	Y	EV(110153,DCM,"Source Role ID")
Active Participant (2)	UserID	Y	DICOM Client AE Title
	UserIsRequestor	Y	false
	NetworkAccessPointTypeCode	Y	None
	NetworkAccessPointID	Y	Host Name or IP Address of Media Manager server
	RoleIDCode	Y	EV (110152, DCM, "Destination Role ID")
Active Participant (3)	UserID	Y	MM User
	UserIsRequestor	Y	true
	NetworkAccessPointTypeCode	Y	None
	NetworkAccessPointID	Y	None
	RoleIDCode	Y	EV(1, RFC-3881, Person)
Audit source identification	Code	Y	9
	AuditSourceID	Y	Empty value
Participant Object : Patients	ParticipantObjectID	Y	patientid^^^&assigningAuthorityOid &ISO
	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectIDTypeCode	Y	EV(2,RFC-3881,"Patient Number")
	ParticipantObjectName	Y	No value
Participant Object : Studies	ParticipantObjectID	Y	Study Id
	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectIDTypeCode	Y	EV(110180,DCM,"Study Instance UID")
	ParticipantObjectName	Y	No value
	MPPS	Y	It contain UID
	Accession	Y	It contain Accession Number
	SOPClass	Y	It contains SOPClass UID, Number Of Instances and Instance UID
Query			
Event	EventID	Y	EV(110112,DCM,"Query")
	EventActionCode	Y	E
	EventDateTime	Y	System Current Date Time
	EventOutcomeIndicator	Y	0 = Successful 8 = Unsuccessful

Active Participant (1)	UserID	Y	DICOM Archive AE Title
	UserIsRequestor	Y	false
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	Host Name or IP Address of the DICOM Archive
	RoleIDCode	Y	EV(110153,DCM,"Destination Role ID")
Active Participant (2)	UserID	Y	DICOM Client AE Title
	UserIsRequestor	Y	false
	NetworkAccessPointTypeCode	Y	1
	NetworkAccessPointID	Y	Host Name or IP Address of the MM server
	RoleIDCode	Y	EV(110154,DCM,"Source")
Active Participant (3)	UserID	Y	MM User
	UserIsRequestor	Y	true
	NetworkAccessPointTypeCode	Y	None
	NetworkAccessPointID	Y	None
Audit source identification	Audit Source Type Code	Y	4
	AuditSourceID	Y	Media Manager
Participant Object	ParticipantObjectIDTypeCode	Y	DT (110181, DCM, "SOP Class UID")
	ParticipantObjectID	Y	SOP Class UID
	ParticipantObjectDetail	Y	Type: Transfer Syntax
	ParticipantObjectTypeCode	Y	Shall be: 2 = System
	ParticipantObjectTypeCodeRole	Y	Shall be: 3 = report
	ParticipantObjectQuery	Y	DICOM Query
	Accession	Y	Empty
	SOPClass	Y	It contains SOPClass UID, Number Of Instances and Instance UID
Security Alert			
Event	EventID	Y	EV(110113,DCM,"Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	System Current Date Time
	EventOutcomeIndicator	Y	8
	EventTypeCode	Y	EV (110113, DCM, "Security Alert")
Active Participant (1)	UserID	Y	reporter id
	UserIsRequestor	Y	false
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	Host Name or IP Address of the DICOM Archive
	RoleIDCode	Y	EV (110150, DCM, "Application")
Active Participant (2)	UserID	Y	MM User
	UserIsRequestor	Y	true
	NetworkAccessPointTypeCode	Y	1
	NetworkAccessPointID	Y	Host Name or IP Address of the MM server
	RoleIDCode	Y	EV (110151, DCM, "Application Launcher")
Participant Object	ParticipantObjectIDTypeCode	Y	DT (110113, DCM, Security Alert)
	ParticipantObjectID	Y	Patient ID
	ParticipantObjectDetail	Y	DT (110113, DCM, Security Alert)
	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13

3. VL PHOTOGRAPHIC INFORMATION OBJECT IMPLEMENTATION

3.1 INTRODUCTION

This section specifies the use of the DICOM VL Image IOD to represent the information included in VL Images produced by this implementation. Corresponding attributes are conveyed using the module construct.

3.2 MEDIA MANAGER MAPPING OF DICOM ENTITIES

Media Manager maps DICOM Information Entities to local Information Entities in the product's database and user interface. Operator can ingest one or more than one documents (Image/Video/PDF) from MM web console or Mobile application which is called submission. Each submission done through Media Manager is mapped with one study.

TABLE 3-1
MAPPING OF DICOM ENTITIES TO MEDIA MANAGER ENTITIES

DICOM IE	Media Manager Entity
Patient	Patient
Study	Submission
Series	Series
Image	Image

The Visible Light Information Object Definition comprises the modules of the following table, plus Standard Extended and Private attributes. Standard Extended and Private attributes are described in Section 3.4.

TABLE 3-2
VL IMAGE IOD MODULES

Entity Name	Module Name	Usage	Reference
Patient	Patient	Used	3.3.1
Study	General Study	Used	3.3.2.1
Series	General Series	Used	3.3.3.1
Equipment	General Equipment	Used	3.3.4.1
Image	General Image	Used	3.3.5.1
	Image Pixel	Used	3.3.6.1
	VL Image	Used	3.3.7.1
	SOP Common	Used	3.3.8.1

3.3 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Standard Part 3 (Information Object Definitions) for a description of each of the entities and modules contained within the VL Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

3.3.1 Patient Entity Modules

3.3.1.1 Patient Module

TABLE 3-3
PATIENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Patient Name chosen to create submission in Media Manager
Patient ID	(0010,0020)	2	MRN of the patient
Issuer of Patient ID	(0010,0021)	3	Assigning Authority
Patient's Birth Date	(0010,0030)	2	Patient DOB
Patient's Sex	(0010,0040)	2	Patient Sex

Note: All patient demographics specified in above table are retrieved by performing PIX or PDQ queries against an EMPI when operator performs patient search by providing either patient id or demographics respectively.

3.3.2 Study Entity Modules

3.3.2.1 General Study Module

TABLE 3-4
GENERAL STUDY MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Generated by MM at the time of IOD creation
Study Date	(0008,0020)	2	Generated by MM on the Date of IOD creation
Study Time	(0008,0030)	2	Generated by MM at the time of IOD creation
Referring Physician's Name	(0008,0090)	2	Empty
Study ID	(0020,0010)	2	Generated by MM
Accession Number	(0008,0050)	2	Empty
Study Description	(0008,1030)	3	Media Manager: Visible Light Image Capture

3.3.3 Series Entity Modules

3.3.3.1 General Series Module

TABLE 3-5
GENERAL SERIES MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	XC (External Photography Camera)
Series Instance UID	(0020,000E)	1	Generated by MM
Series Number	(0020,0011)	2	Sequence number of the document in a submission
Series Date	(0008,0021)	3	Generated by MM on the Date of IOD creation
Series Time	(0008,0031)	3	Generated by MM at the Date of IOD creation
Performing Physicians' Name	(0008,1050)	3	MM logged in username who performed the submission
Series Description	(0008,103E)	3	Captured value from General Comment attribute in MM, "Media Manager Series" otherwise

3.3.4 Equipment Entity Modules

3.3.4.1 General Equipment Module

TABLE 3-6
GENERAL EQUIPMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	Empty
Institution Name	(0008,0080)	3	Facility name used to create submission in MM
Station Name	(0008,1010)	3	MM server machine name
Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM

3.3.5 General Image Modules

3.3.5.1 General Image Module

TABLE 3-7
GENERAL IMAGE MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Instance Number	(0020,0013)	2	Generated by MM
Patient Orientation	(0020,0020)	2C	Empty
Content Date	(0008,0023)	2C	Date at which the image was acquired
Content Time	(0008,0033)	2C	at which the image was acquired
Image Type	(0008,0008)	3	ORIGINAL\PRIMARY if captured via MM mobile device, ORIGINAL\SECONDARY otherwise
Acquisition Date	(0008,0022)	3	Date at which the image was acquired

Acquisition Time	(0008,0032)	3	Time at which the image was acquired
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3.3.5.1.1 Patient Orientation

Not used.

3.3.5.1.2 Derivation Description and Source Image Sequence

Not used.

3.3.5.1.3 Lossy Image Compression

Not used.

3.3.5.1.4 Icon Image Key Definition

Not supported.

3.3.6 Image Pixel Module

3.3.6.1 Image Pixel Module

TABLE 3-8
IMAGE PIXEL MODULE ATTRIBUTES

Attribute Name	Tag	Type	Use
Photometric Interpretation	(0028,0004)	1	A value created by MM.
Rows	(0028,0010)	2	A value created by MM.
Columns	(0028,0011)	2	A value created by MM.
Bits Allocated	(0028,0100)	1	A value created by MM
Bits Stored	(0028,0101)	1	A value created by MM
High Bit	(0028,0102)	1	A value created by MM
Pixel Representation	(0028,0103)	1	A value created by MM
Sample per Pixel	(0028,0002)	1	A value created by MM
Planar Configuration	(0028,0006)	1C	A value created by MM
Pixel Data	(7FE0,0010)	1C	Array buffer of Image Pixel Data

3.3.7 VL Image Module

3.3.7.1 VL Image Module

**TABLE 3-9
IMAGE PIXEL MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Use
Image Type	(0008,0008)	1	ORIGINAL\PRIMARY if captured via MM mobile device, ORIGINAL\SECONDARY otherwise
Photometric Interpretation	(0028,0004)	1	A value created by MM.
Bits Allocated	(0028,0100)	1	A value created by MM
Bits Stored	(0028,0101)	1	A value created by MM
High Bit	(0028,0102)	1	A value created by MM
Pixel Representation	(0028,0103)	1	A value created by MM
Sample per Pixel	(0028,0002)	1	A value created by MM
Planar Configuration	(0028,0006)	1C	A value created by MM
Lossy Image Compression	(0028,2110)	2	A value created by MM
Image Laterality	(0020,0062)	3	U(unpaired)

3.3.8 SOP Common Module

3.3.8.1 SOP Common Module

**TABLE 3-10
SOP COMMON MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Generated by Media Manager following UUID D approach.
SOP Instance UID	(0008,0018)	1	Generated by Media Manager following UUID D approach.
Specific Character Set	(0008,0005)	1C	ISO_IR 192
Instance Creation Date	(0008,0012)	3	Date at which IOD instance is created
Instance Creation Time	(0008,0013)	3	Time at which IOD instance is created
Manufacturer	(0008,0070)	2	Empty
Institution Name	(0008,0080)	3	Facility name used to create submission in MM
Station Name	(0008,1010)	3	MM server machine name
Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM

3.4 STANDARD EXTENDED AND PRIVATE DATA ATTRIBUTES

Not Used.

3.5 STANDARD EXTENDED AND PRIVATE CONTEXT GROUPS

Not used.

4. VIDEO PHOTOGRAPHIC IMAGE INFORMATION OBJECT IMPLEMENTATION

4.1 INTRODUCTION

This section specifies the use of the DICOM Video Photographic Image IOD to represent the information included in Visible Light Video Images produced by this implementation. Corresponding attributes are conveyed using the module construct.

4.2 MEDIA MANAGER MAPPING OF DICOM ENTITIES

Media Manager maps DICOM Information Entities to local Information Entities in the product's database and user interface.

TABLE 4-1
MAPPING OF DICOM ENTITIES TO MEDIA MANAGER ENTITIES

DICOM IE	Media Manager Entity
Patient	Patient
Study	Submission
Series	Series
Image	Image

4.3 IOD MODULE TABLE

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

TABLE 4-2
VIDEO PHOTOGRAPHIC IMAGE IOD MODULES

Entity Name	Module Name	Usage	Reference
Patient	Patient	Used	4.4.1.1
Study	General Study	Used	4.4.2.1
Series	General Series	Used	4.4.3.1
Equipment	General Equipment	Used	4.4.4.1
Image	General Image	Used	4.4.5.1
	Image Pixel	Used	4.4.6.1
	SOP Common	Used	4.4.7.1
	Acquisition Context	Used	4.6.1.1
	Cine	Not Used	N/A
	Multi Frame	Used	4.6.2.1

4.4 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Standard Part 3 (Information Object Definitions) for a description of each of the entities and modules contained within the Video Photographic Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

4.4.1 Patient Entity Modules

4.4.1.1 Patient Module

TABLE 4-3
PATIENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Patient Name chosen to create submission in Media Manager
Patient ID	(0010,0020)	2	MRN of the patient
Issuer of Patient ID	(0010,0021)	3	Assigning Authority
Patient's Birth Date	(0010,0030)	2	Patient DOB
Patient's Sex	(0010,0040)	2	Patient Sex
Referenced Patient Sequence	(0008,1120)	3	Not used

4.4.2 Study Entity Modules

4.4.2.1 General Study Module

Table 4-4
GENERAL STUDY MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Generated by MM at the time of IOD creation
Study Date	(0008,0020)	2	Generated by MM on the Date of IOD creation
Study Time	(0008,0030)	2	Generated by MM at the time of IOD creation
Referring Physician's Name	(0008,0090)	2	Empty
Study ID	(0020,0010)	2	Generated by MM
Accession Number	(0008,0050)	2	Empty
Study Description	(0008,1030)	3	Media Manager - Visible Light Image Capture

4.4.3 Series Entity Modules

4.4.3.1 General Series Module

Table 4-5
GENERAL SERIES MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	XC (External Photography Camera)
Series Instance UID	(0020,000E)	1	Generated by MM
Series Number	(0020,0011)	2	Sequence number of the document in a submission
Series Date	(0008,0021)	3	Generated by MM on the Date of IOD creation
Series Time	(0008,0031)	3	Generated by MM at the Date of IOD creation
Performing Physicians' Name	(0008,1050)	3	MM logged in username who performed the submission
Series Description	(0008,103E)	3	Captured value from General Comment attribute in MM, Media Manager Series otherwise

4.4.4 Equipment Entity Modules

4.4.4.1 General Equipment Module

Table 4-6
GENERAL EQUIPMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	Empty
Institution Name	(0008,0080)	3	Facility name used to create submission in MM
Station Name	(0008,1010)	3	MM server machine name

Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM
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4.4.5 Image Entity Modules

4.4.5.1 General Image Module

Table 4-7
GENERAL IMAGE MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Instance Number	(0020,0013)	2	Generated by MM
Patient Orientation	(0020,0020)	2C	Empty
Content Date	(0008,0023)	2C	Date at which the image was acquired
Content Time	(0008,0033)	2C	at which the image was acquired
Image Type	(0008,0008)	3	ORIGINAL\PRIMARY if captured via MM mobile device, ORIGINAL\SECONDARY otherwise
Acquisition Date	(0008,0022)	3	Date at which the image was acquired
Acquisition Time	(0008,0032)	3	Time at which the image was acquired
Image Comments	(0020,4000)	3	The content was acquired by Media Manager using a digital device. The content is intended to document patient condition and is not intended for medical diagnostic purposes.
Lossy Image Compression	(0028,2110)	3	Empty
Image Laterality	(0020,0062)	3	U(unpaired)

4.4.6 Image Pixel Module

4.4.6.1 Image Pixel Module

Table 4-8
Image Pixel MODULE ATTRIBUTES

Attribute Name	Tag	Type	Use
Rows	(0028,0010)	2	A value created by MM.
Columns	(0028,0011)	2	A value created by MM.
Bits Allocated	(0028,0100)	1	A value created by MM
Bits Stored	(0028,0101)	1	A value created by MM
High Bit	(0028,0102)	1	A value created by MM
Pixel Representation	(0028,0103)	1	A value created by MM
Sample per Pixel	(0028,0002)	1	A value created by MM
Planar Configuration	(0028,0006)	1C	A value created by MM
Pixel Data	(7FE0,0010)	1C	Array buffer of Video Pixel Data

4.4.7 SOP Common

4.4.7.1 SOP Common Module

Table 4-9
SOP COMMON MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Generated by Media Manager following UUID D approach.
SOP Instance UID	(0008,0018)	1	Generated by Media Manager following UUID D approach.
Specific Character Set	(0008,0005)	1C	ISO_IR 192
Instance Creation Date	(0008,0012)	3	Date at which IOD instance is created
Instance Creation Time	(0008,0013)	3	Time at which IOD instance is created
Manufacturer	(0008,0070)	2	Empty
Institution Name	(0008,0080)	3	Facility name used to create submission in MM
Station Name	(0008,1010)	3	MM server machine name
Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM

4.4.8 Acquisition Context

4.4.8.1 Acquisition Context Module

Table 4-10
Acquisition Context MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Acquisition Context Sequence	(0040,0555)	2	Empty

4.4.9 Multi frame Context

4.4.9.1 Multi-frame Module

TABLE 4-11
MULTI FRAME MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Number of frames	(0028,0008)	1	Calculated by MM
Frame Increment Pointer	(0028,0009)	1	Empty

4.5 STANDARD EXTENDED AND PRIVATE DATA ATTRIBUTES

Not Used.

4.6 STANDARD EXTENDED AND PRIVATE CONTEXT GROUPS

Not used.

5. ENCAPSULATED PDF INFORMATION OBJECT IMPLEMENTATION

5.1 INTRODUCTION

This section specifies the use of the Encapsulated PDF IOD to represent the information included in PDF document produced by this implementation. Corresponding attributes are conveyed using the module construct.

5.2 MEDIA MANAGER MAPPING OF DICOM ENTITIES

Media Manager maps DICOM Information Entities to local Information Entities in the product's database and user interface.

TABLE 5-1
MAPPING OF DICOM ENTITIES TO MEDIA MANAGER ENTITIES

DICOM IE	Media Manager Entity
Patient	Patient
Study	Submission
Series	Series
Image	Image

5.3 IOD MODULE TABLE

The Encapsulated PDF Information Object Definition comprises the modules of the following table, plus Standard Extended and Private attributes. Standard Extended and Private attributes are described in Section 3.4.

TABLE 5-2
ENCAPSULATED PDF IOD MODULES

Entity Name	Module Name	Usage	Reference
Patient	Patient	Used	5.4.1
Study	General Study	Used	5.4.2
Series	Encapsulated Document Series	Used	5.4.3
Equipment	General Equipment	Used	5.4.4
	SC Equipment	Used	5.4.6
Document	Encapsulated Document	Used	5.4.5
	SOP Common	Used	5.4.7

5.4 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Standard Part 3 (Information Object Definitions) for a description of each of the entities and modules contained within the VL Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

5.4.1 Patient Entity Modules

5.4.1.1 Patient Module

TABLE 5-3
PATIENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Patient Name chosen to create submission in Media Manager
Patient ID	(0010,0020)	2	MRN of the patient
Issuer of Patient ID	(0010,0021)	3	Assigning Authority
Patient's Birth Date	(0010,0030)	2	Patient DOB
Patient's Sex	(0010,0040)	2	Patient Sex

5.4.2 Study Entity Modules

5.4.2.1 General Study Module

TABLE 5-4
GENERAL STUDY MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Generated by MM at the time of IOD creation
Study Date	(0008,0020)	2	Generated by MM on the Date of IOD creation
Study Time	(0008,0030)	2	Generated by MM at the time of IOD creation
Referring Physician's Name	(0008,0090)	2	Empty
Study ID	(0020,0010)	2	Generated by MM
Accession Number	(0008,0050)	2	Empty
Study Description	(0008,1030)	3	Media Manager - Visible Light Image Capture

5.4.3 Series Entity Modules

5.4.3.1 General Series Module

TABLE 5-5
GENERAL SERIES MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	OT (Other)
Series Instance UID	(0020,000E)	1	Generated by MM
Series Number	(0020,0011)	2	Sequence number of the document in a submission
Series Date	(0008,0021)	3	Generated by MM on the Date of IOD creation
Series Time	(0008,0031)	3	Generated by MM at the Date of IOD creation
Performing Physicians' Name	(0008,1050)	3	MM logged in username who performed the submission
Series Description	(0008,103E)	3	Captured value from General Comment attribute in MM, Media Manager Series otherwise

5.4.4 Equipment Entity Modules

5.4.4.1 General Equipment Module

TABLE 5-6
GENERAL EQUIPMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	Empty
Institution Name	(0008,0080)	3	Facility name used to create submission in MM
Station Name	(0008,1010)	3	MM server machine name
Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM

5.4.5 Encapsulated Document Modules

TABLE 5-7
ENCAPSULATED DOCUMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Instance Number	(0020,0013)	1	1
Burned In Annotation	(0028,0301)	1	NO
Concept Name Code Sequence	(0040,A043)	2	Empty
Content Date	(0008,0023)	2	Date at which the image was acquired
Content Time	(0008,0033)	2	at which the image was acquired
Acquisition Date Time	(0008,002A)	2	Date and Time at which the Document was acquired
MIME Type of Encapsulated Document	(0042,0012)	1	application/pdf

5.4.6 SC Equipment Modules

TABLE 5-8
ENCAPSULATED DOCUMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	3	OT
ConversionType	(0008,0064)	1	SD

5.4.7 SOP Common Modules

5.4.7.1 SOP Common Module

TABLE 5-9
SOP COMMON MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Standard UID for Encapsulated SOP Class
SOP Instance UID	(0008,0018)	1	Unique UID auto generated by MM
Specific Character Set	(0008,0005)	1C	ISO_IR 192
Instance Creation Date	(0008,0012)	3	Date at which IOD is created

Instance Creation Time	(0008,0013)	3	Time at which IOD is created
Instance Number	(0020,0013)	3	Sequence number in series

6. BASIC TEXT STRUCTURED REPORT INFORMATION OBJECT IMPLEMENTATION

6.1 INTRODUCTION

This section specifies the use of the DICOM Basic Text SR IOD to represent results produced by this implementation. Corresponding attributes are conveyed using the module construct.

6.2 MEDIA MANAGER MAPPING OF DICOM ENTITIES

The Media Manager maps DICOM Information Entities to local Information Entities in the product's database and user interface.

TABLE 6-1
MAPPING OF DICOM ENTITIES TO MEDIA MANAGER ENTITIES

DICOM IE	Media Manager Entity
Patient	Patient
Study	Submission
Series	Series
Document	Document

6.3 IOD MODULE TABLE

The Basic Text Structured Report Information Object Definitions comprise the modules of the following tables, plus Standard Extended and Private attributes. Standard Extended and Private attributes are described in Section 7.3.3.5

TABLE 6-2
STRUCTURE REPORT IOD MODULES

Entity Name	Module Name	Usage	Reference
Patient	Patient	Used	6.4.1.1
Study	General Study	Used	6.4.2.1
Series	SR Document Series	Used	6.4.3.1
Equipment	General Equipment	Used	6.4.3.5
Document	SR Document General	Used	6.4.3.2
	SR Document Content	Used	6.4.3.3

	SOP Common	Used	6.4.3.4
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6.4 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the entities, modules, and attributes contained within the SR Information Objects.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define care group attributes captured from Media Manager submission. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

6.4.1 Patient Entity Modules

6.4.1.1 Patient Module

TABLE 6-3
PATIENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Patient Name chosen to create submission in Media Manager
Patient ID	(0010,0020)	2	MRN of the patient
Issuer of Patient ID	(0010,0021)	3	Assigning Authority
Patient's Birth Date	(0010,0030)	2	Patient DOB
Patient's Sex	(0010,0040)	2	Patient Sex

6.4.2 Study Entity Modules

6.4.2.1 General Study Module

TABLE 6-4
GENERAL STUDY MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Generated by MM
Study Date	(0008,0020)	2	Date at which IOD was generated
Study Time	(0008,0030)	2	Time at which IOD was generated
Referring Physician's Name	(0008,0090)	2	Empty
Study ID	(0020,0010)	2	Generated by MM
Accession Number	(0008,0050)	2	Empty
Study Description	(0008,1030)	3	Media Manager – Visible Light Image Capture

6.4.3 Series Entity Modules

6.4.3.1 SR Document Series Module

TABLE 6-5
SR DOCUMENT SERIES MODULE ATTRIBUTES

Attribute Name	Tag	Type	Use
Modality	(0008,0060)	1	SR
Series Instance UID	(0020,000E)	1	Generated by MM
Series Number	(0020,0011)	1	Sequence number of the series containing SR.
Series Date	(0008,0021)	3	Date at which the series is created
Series Time	(0008,0031)	3	Time at which the series is created
Series Description	(0008,103E)	3	Captured value from General Comment attribute in MM, Media Manager Series otherwise
>Referenced Performed Procedure Step Sequence	(0008,1111)	2	Reference to corresponding Image/Video/PDF DICOM object for which SR is created
<i>Referenced SOP Class UID</i>	(0008,1150)	1	SOP class UIDs of the referenced DICOM Object
<i>Referenced SOP Instance UID</i>	(0008,1155)	1	SOP Instance UIDs of the referenced DICOM Object

6.4.3.2 SR Document General Module

TABLE 6-6
SR DOCUMENT GENERAL MODULE ATTRIBUTES

Attribute Name	Tag	Type	Use
Instance Number	(0020,0013)	1	Sequence number of the SR in the series.
Completion Flag	(0040,A491)	1	Enumerated Values: COMPLETE = Complete content.

Verification Flag	(0040,A493)	1	Enumerated Values: UNVERIFIED = Not attested to.
Content Date	(0008,0023)	1	Date at which the SR is created
Content Time	(0008,0033)	1	Time at which the SR is created

6.4.3.3 SR Document Content Module

TABLE 6-7
SR DOCUMENT CONTENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Use
Value Type	(0040,A040)	1	CONTAINER
Continuity of Content	(0040,A050)	1C	SEPARATE
Concept Name Code Sequence	(0040,A043)	1C	
<i>Insert Concept Value attribute(s)</i>			
Content Sequence	(0040,A730)	1C	
> Relationship Type	(0040,A010)	1	HAS OBS CONTEXT
> Referenced Content Item Identifier	(0040,DB73)	1C	Not used in Basic Text SR SOP Class
> <i>Insert SR DocumentContent Module</i>			Recursive inclusion to create document content tree.

6.4.3.3.1 SR Document Content Descriptions

The following table describes defined terms for the SR Document Module

6.4.3.3.2 Content Template

TABLE 6-8

Usage and extension of TID 1001 Observation Context

	NL	Relation with Parent	VT	Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV(MM-001, 99GEMS, "Clinical Attribute Report")	1	M		Root Node
2		HAS OBS CONTEXT	PNAME	EV(121008, DCM, "Person Observer Name")	1	M		
3		HAS OBS CONTEXT	TEXT	EV(MM-002, 99GEMS, "Referenced Series Description")	1	M		
4		HAS OBS CONTEXT	TEXT	EV(MM-003, 99GEMS, "Referenced Series Number")	1	M		

5		HAS OBS CONTEXT	TEXT	EV(MM-004, 99GEMS, “Referenced SOP Instance UID (0008, 0018)”))	1	M		
6		CONTAINS	CONTAINER	EV(MM-005, 99GEMS, “Attributes”))	1			
7		CONTAINS	COMPOSITE	EV(121080, DCM, “Best illustration of finding”))	1-n	U		

TABLE 6-9

STANDARD EXTENDED AND PRIVATE CONTEXT GROUPS

Code Value(0008,0100)	Code Scheme Designator (0008,0102)	Code Meaning (0008,0104)	Use
MM-001	99GEMS	Clinical Attributes Report	Create/Display
MM-002	99GEMS	Referenced Series Description	Create/Display
MM-003	99GEMS	Referenced Series Number	Create/Display
MM-004	99GEMS	Referenced SOP Instance UID (0008,0018)	Create/Display
MM-005	99GEMS	Attributes	Create/Display
MM-006	99GEMS	Care Group	Create/Display
Attribute Code set in MM configuration	99GEMS	Dynamic Attributes captured from MM submission	Create/Display

6.4.3.4 SOP Common Module

TABLE 6-10
SOP COMMON MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Standard UID for Basic Text SR SOP Class
SOP Instance UID	(0008,0018)	1	Unique UID auto generated by MM
Specific Character Set	(0008,0005)	1C	ISO_IR 192
Instance Creation Date	(0008,0012)	3	Date at which SR is created
Instance Creation Time	(0008,0013)	3	Time at which SR is created
Institution Name	(0008,0080)	3	Facility name used to create submission in MM
Station Name	(0008,1010)	3	MM server machine name
Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM
Instance Number	(0020,0013)	3	Sequence number in SR series

Note: When a document is submitted from Media Manager, a supporting SR document is also generated containing the metadata of the document. When the same document’s metadata is updated from Media Manager, a new SR with same SOP instance UID is generated and stored in archive, overwriting the previous SR.

6.4.3.5 General Equipment Module

TABLE 6-11
GENERAL EQUIPMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	Empty
Institution Name	(0008,0080)	3	Facility name used to create submission in MM
Station Name	(0008,1010)	3	MM server machine name
Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM

6.5 STANDARD EXTENDED AND PRIVATE DATA ATTRIBUTES

The Product supports the Standard and Private Attributes defined in the following sections in Standard Extended SR SOP Instances as Type 3 data elements.

6.5.1 Private Group GEMS_0039

TABLE 6-12
STANDARD EXTENDED ATTRIBUTES

Attribute Name	Tag	VR	VM	Attribute Description and Use
Application specific data	(0040, A160)	LO	1	Metadata of MM ingested document

6.6 STANDARD EXTENDED AND PRIVATE CONTEXT GROUPS

Not used.

6.7 STANDARD, STANDARD EXTENDED AND PRIVATE TEMPLATES

Not Used.

7. KEY OBJECT SELECTION INFORMATION OBJECT IMPLEMENTATION

7.1 INTRODUCTION

This section specifies the use of the DICOM Key Object Selection IOD to represent the information included in KOS produced by this implementation. Corresponding attributes are conveyed using the module construct.

KOS: Key Object Selection - Is used to flag Image/Video/PDF which needs to be deleted. The MM user selects Key documents for deletion from MM client applications, which creates KOS object with fixed Notes.

Media Manager Mapping of DICOM Entities

The Media Manager maps DICOM Information Entities to local Information Entities in the product's database and user interface.

TABLE 7-1
MAPPING OF DICOM ENTITIES TO MEDIA MANAGER ENTITIES

DICOM IE	Media Manager Entity
Patient	Patient
Study	Submission
Series	Series
Document	Document

7.2 IOD MODULE TABLE

The Key Object Selection Information Object Definitions comprise the modules of the following tables, plus Standard Extended and Private attributes. Standard Extended and Private attributes are described in Section 7.3

TABLE 7-2
KOS IOD MODULES

Entity Name	Module Name	Usage	Reference
Patient	Patient	Used	7.3.1.1
Study	General Study	Used	7.3.2.1
Series	Key Object Document Series	Used	7.3.3.1
Equipment	General Equipment	Used	7.3.3.7
Document	Key Object Document Series	Used	7.3.3.2
	Key Object Document	Used	7.3.3.3
	SR Document Content	Used	7.3.3.6
	SOP Common	Used	7.3.34

7.3 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the entities, modules, and attributes contained within the SR Information Objects.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define care group attributes captured from Media Manager submission. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

7.3.1 Patient Entity Modules

7.3.1.1 Patient Module

TABLE 7-3
PATIENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Patient Name chosen to create submission in Media Manager
Patient ID	(0010,0020)	2	MRN of the patient
Issuer of Patient ID	(0010,0021)	3	Assigning Authority
Patient's Birth Date	(0010,0030)	2	Patient DOB
Patient's Sex	(0010,0040)	2	Patient Sex

7.3.2 Study Entity Modules

7.3.2.1 General Study Module

**TABLE 7-4
GENERAL STUDY MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Generated by MM
Study Date	(0008,0020)	2	Date at which IOD was generated
Study Time	(0008,0030)	2	Time at which IOD was generated
Referring Physician's Name	(0008,0090)	2	Empty
Study ID	(0020,0010)	2	Generated by MM
Accession Number	(0008,0050)	2	Empty
Study Description	(0008,1030)	3	Media Manager – Visible Light Image Capture

7.3.3 Series Entity Modules

7.3.3.1 KOS Document Series Module

**TABLE 7-5
KOS DOCUMENT SERIES MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Use
Modality	(0008,0060)	1	Value = KO
Series Instance UID	(0020,000E)	1	Generated by MM
Series Number	(0020,0011)	1	Sequence number of the series containing KOS objects.
Series Date	(0008,0021)	3	Date at which the series is created
Series Time	(0008,0031)	3	Time at which the series is created
Series Description	(0008,103E)	3	Captured value from General Comment attribute in MM, Media Manager Series otherwise
Referenced Performed Procedure Step Sequence	(0008,1111)	2	Reference to corresponding Image/Video/PDF DICOM object for which SR is created
> 'Referenced SOP Class / Instance UIDs'			SOP class/ Instance UIDs of the referenced DICOM Object to be deleted

7.3.3.2 KOS Document General Module

**TABLE 7-6
KOS DOCUMENT GENERAL MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Use
Instance Number	(0020,0013)	1	Sequence number of the KOS in the series.
Completion Flag	(0040,A491)	1	Enumerated Values: COMPLETE = Complete content.
Completion Flag Description	(0040,A492)	3	
Verification Flag	(0040,A493)	1	Enumerated Values: UNVERIFIED = Not attested to.
Content Date	(0008,0023)	1	Date at which the SR is created
Content Time	(0008,0033)	1	Time at which the SR is created

7.3.3.3 KOS Document Content Module

TABLE 7-7 KOS DOCUMENT CONTENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Use
Value Type	(0040,A040)	1	CONTAINER
Continuity of Content	(0040,A050)	1C	SEPARATE
Concept Name Code Sequence	(0040,A043)	1C	
Code Value	(0008,0100)	1	113039
Coding Scheme Designator	(0008, 0102)	1	DCM
Code Meaning	(0008, 0102)	1	Data Retention Policy Expired

7.3.3.3.1 KOS Document Content Descriptions

The following table describes defined terms for the KOS Object

TABLE 7-8

Code Value(0008,0100)	Code Scheme Designator (0008,0102)	Code Meaning (0008,0104)	Use
113039	DCM	Data Retention Policy Expired	Delete document

7.3.3.4 SOP Common Module

**TABLE 7-9
SOP COMMON MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Standard UID for Basic Text SR SOP Class
SOP Instance UID	(0008,0018)	1	Unique UID auto generated by MM
Specific Character Set	(0008,0005)	1C	ISO_IR 192
Instance Creation Date	(0008,0012)	3	Date at which SR is created
Instance Creation Time	(0008,0013)	3	Time at which SR is created
Instance Number	(0020,0013)	3	Sequence number in SR series

7.3.3.5 SR Document Content

TABLE 7-10
SR DOCUMENT ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Standard UID for Basic Text SR SOP Class
SOP Instance UID	(0008,0018)	1	Unique UID auto generated by MM
Specific Character Set	(0008,0005)	1C	
Instance Creation Date	(0008,0012)	3	Date at which SR is created
Instance Creation Time	(0008,0013)	3	Time at which SR is created
>Manufacturer	(0008,0070)	1	
>Institution Name	(0008,0080)	3	Facility name used to create submission in MM
>Institution Address	(0008,0081)	3	
>Station Name	(0008,1010)	3	MM server machine name
>Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM
Instance Number	(0020,0013)	3	Sequence number in SR series

7.3.3.6 General Equipment Module

TABLE 7-11
GENERAL EQUIPMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	
Institution Name	(0008,0080)	3	Facility name used to create submission in MM
Station Name	(0008,1010)	3	MM server machine name
Institutional Department Name	(0008,1040)	3	Care group name used to create submission in MM

7.4 STANDARD EXTENDED AND PRIVATE DATA ATTRIBUTES

The Product supports the Standard and Private Attributes defined in the following sections in Standard Extended SR SOP Instances as Type 3 data elements.

7.4.1 Private Group

Private Group Not Used.

7.5 STANDARD EXTENDED AND PRIVATE CONTEXT GROUPS

Not used.

7.6 STANDARD, STANDARD EXTENDED AND PRIVATE TEMPLATES

Not Used.

8. STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL – FIND IMPLEMENTATION

8.1 MEDIA MANAGER MAPPING OF DICOM ENTITIES

The Media Manager maps DICOM Information Entities to local Information Entities in the product's database and user interface.

TABLE 8-1
MAPPING OF DICOM ENTITIES TO MEDIA MANAGER ENTITIES

DICOM	Media Manager Entity
Patient	Patient
Study	Submission
Series	Series
Image	Image

8.2 INFORMATION MODEL KEYS

Please refer to DICOM Standard PS 3.4 (Service Class Specifications) for a description of each of the levels contained within the Query/Retrieve Information Model.

8.2.1 Common Query Keys

The query key attributes specified in this section are used at all levels and in all classes of query.

TABLE 8-2
Q/R PATIENT LEVEL COMMON RETRIEVE ATTRIBUTES

Attribute Name	Tag	Type	SCU Use	SCP Use
----------------	-----	------	---------	---------

Query Retrieve Level	(0008,0052)	-	Set to level of query: IMAGE Matching is requested if enabled in the current filter	IMAGE is matched.
Patient Id	(0010,0020)	-	Matching is requested if enabled in the current filter	Patient ID is matched.
Study Description	(0008,1030)	-	Matching is requested if enabled in the current filter	Study Description is matched.
SOP Instance UID	(0008,0018)	-	zero length	This element is only returned

8.2.1.1 Q/R Common Attribute Descriptions

8.2.1.1.1 Specific Character Set

As an SCU, the attribute Specific Character Set (0008,0005) will not be sent, unless a patient or physician name is sent with a matching key that includes a non-ASCII character; in that case, the configured extended character set identifier will be sent. Only non-ASCII characters that may be entered from the console keyboard, as described in Section 2.7, may be included in the matching key value. Query response item text attributes, including patient and physician names, that include non-ASCII characters will be displayed as described in Section 2.7.

As an SCP, if the attribute Specific Character Set (0008,0005) is received with a value not equal to the configured extended character set, all non-ASCII characters in key attributes will be converted to wild card matching characters for processing. Specific Character Set will not be sent in Query responses unless an item text attribute, including patient and physician names, includes a non-ASCII character; in that case, the configured extended character set identifier will be sent.

8.2.2 Patient Level

This section defines the keys at the Patient Level of the Study Root Query/Retrieve Information Models that are supported by this implementation.

TABLE 8-3
PATIENT LEVEL ATTRIBUTES FOR THE STUDY ROOT
QUERY/RETRIEVE INFORMATION MODEL

Attribute Name	Tag	Type	SCU Use	SCP Use
Patient's Name	(0010,0010)	R*	Zero Length	This element is only returned
Patient ID	(0010,0020)	U*	Zero Length	This element is only returned
>Referenced SOP Class UID	(0008,1150)	O	Zero Length	

SOP Instance UID	(0008,1155)	O	Matching is requested if enabled in the current filter	SOP Instance UID is matched.
Study Instance UID	(0020,000D)	U	Zero Length	This element is only returned
Series Instance UID	(0020,000E)	U	Zero Length	This element is only returned
Patient's Birth Date	(0010,0030)	O*	Zero Length	This element is only returned
Patient's Sex	(0010,0040)	O*	Zero Length	This element is only returned.